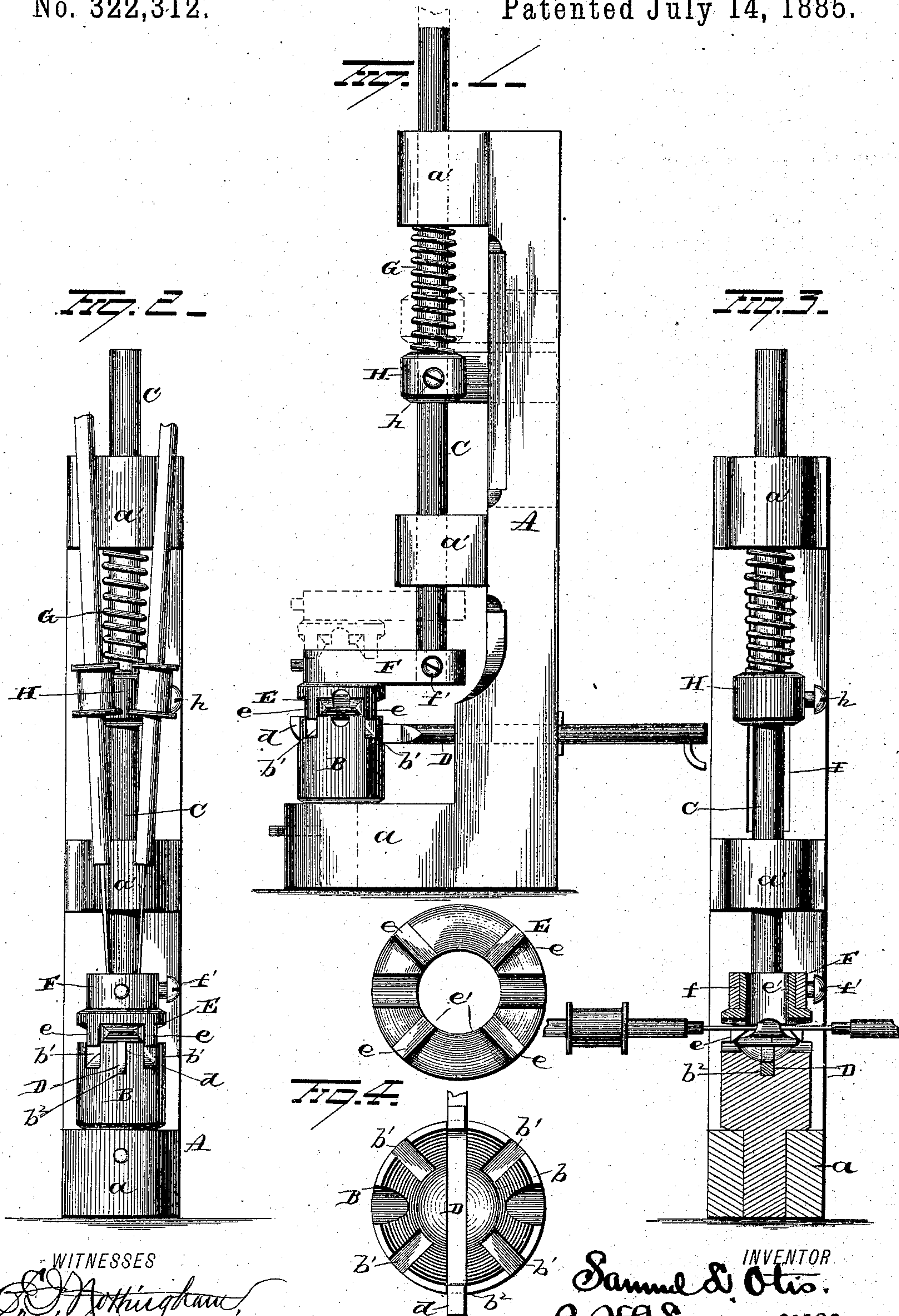


(No Model.)

S. L. OTIS.
WORK HOLDER.

No. 322,312.

Patented July 14, 1885.



WITNESSES

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SAMUEL L. OTIS, OF BIRMINGHAM, CONNECTICUT.

WORK-HOLDER.

SPECIFICATION forming part of Letters Patent No. 322,312, dated July 14, 1885.

Application filed May 13, 1885. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL L. OTIS, of Birmingham, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Work-Holders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in work-holders, and more particularly in holders adapted to hold a button or disk while being operated upon by a drill or other tool.

In the manufacture of buttons from bone, ivory, vegetable ivory, horn, and the like it is desirable to provide some with perforations extending through from the back to the face to form the eyes, and to provide others with one or more perforations extending directly or obliquely through or partially through the stem or back.

One of the devices hitherto in use for the purpose of holding the button in a suitable position for drilling consists of a tube having a funnel-shaped mouth split in quarter-sections, which is just large enough to admit the blank between the lips. When the button is adjusted in the mouth, the tube is forced into a cylinder or ring, or the cylinder or ring is forced onto the tube, pressing the half-sections of the mouth tightly together and thereby holding the blank securely therein. This construction is found to be objectionable, as it necessitates the employment of as many chucks as there are sizes of buttons, and the lateral strain, when the button is bored transversely, tends to tilt it more or less out of place within the chuck.

The object of my present invention is to provide a holder which will adapt itself automatically to different-sized buttons or disks, which will afford a bearing for the button on both its face and back, and which will at the same time be exposed to the action of a drill or other tool in any direction desired. A further object is to provide a device in connection with the holder for extracting the button or disk therefrom.

With these ends in view my invention consists in certain features of construction and

combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of the holder, with a button in position to be operated upon. Fig. 2 represents the button in position in the holder, with drills in position for forming eyes through from back to front. Fig. 3 represents the button in position in the holder, with drills in position for forming eyes transversely, or nearly so, to the stem. Fig. 4 is a detached view of the two gripping-jaws and extractor in its position in one of the jaws.

The supporting-frame for the holder conveniently consists of an upright post or frame, A, provided with a laterally-extending base, *a*, which forms a support for the stationary jaw B, and with two laterally-projecting arms or lugs, *a'*, which form bearings for the operating-rod C. The stationary under jaw, B, consists of a cylindrical block, of metal or other suitable material, provided with a funnel-shaped recess, *b*, in the top, adapted to receive at its upper end a button or disk of the largest size which it is desirable to operate upon, and further provided with a series of radial slots, *b'*, extending to a depth sufficient to be on or below the level of the smallest disk or button to be operated upon. The block B is secured, with its funnel-shaped recess upward, to the base projection *a* at a suitable distance from the upright support A, and is further provided with a transverse slot, *b²*, extending to a depth below the position which the smallest button or disk would occupy, in which a bar, D, having an upturned hook, *d*, on its end, is allowed a limited sliding motion. The shank of the bar D extends through the support A, and is provided with suitable means for attaching power. The hooked end *d* of the bar D engages the edge of the button or disk which has been operated upon, and when the upper jaw, E, has been removed the button or disk may be extracted by sliding the bar D a short distance in its bearings. The bar D is at once returned to its former position to receive the next blank. The upper jaw, E, is secured to the outer end of a stiff arm or bar, F, which latter is secured in vertical adjustment to the lower end of the operating-rod C. The length of the arm F is sufficient to carry the jaw E out from beneath

the bearings a' , the location of the stationary jaw B being made to conform with the position of the jaw E. The face of the jaw E is provided with a series of teeth, e , adapted to fit within the radial slots b' in the jaw B. The inner faces of the teeth e are beveled, as shown, forming a funnel-shaped seat for the button or disk corresponding to the seat in the face of the jaw B. The center of the jaw E is bored out, as shown at e' , and registers with a similar bore, f , in the outer end of the arm F. The bores f e' are adapted to admit the drills into contact with the blank x when it is desired to extend the eyes through from the back to the face. The jaws are further cut away, as shown at y , on their opposite sides to admit the drills when it is desired to extend the eye through the back of the button or stem transversely to the stem. The arm F is conveniently locked to the lower end of the rod C by a set-screw, f' , which extends through the side of the arm into contact with the rod. The rod C has a vertically-sliding movement in its bearings, and is held normally depressed by means of a spring, G, secured on the rod between the upper bearing, a' , and an adjustable arm, H, the eye of which embraces the rod and the shank of which extends into or through an elongated vertical slot, I, formed in the support A between the bearings a' . The arm H is conveniently locked to the rod C by means of a set-screw, h , which extends through the side of the eye into contact with the rod. The shank of the arm H within the slot I also serves to prevent the rod C from rotating, and hence prevents the movable jaw E from lateral displacement. The bevel shape of the faces of the jaws serves to automatically center the blank placed between them, and the bearing which the edge of the blank has both above and below serves to hold it securely against displacement. The larger the blank the farther apart will the jaws be held and the tension of the spring will be greater, and the smaller the blank the nearer will the jaws approach each other and the lighter the pressure exerted by the spring.

The holder as above described may be employed in connection with an automatic feed, and may be operated by power or hand, as found expedient.

It is evident that slight changes in the form and arrangement of the several parts might be resorted to without departing from the spirit and scope of my invention. Hence I do not wish to limit myself strictly to the construction herein set forth; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a work-holder, the combination, with a supporting-frame, of a pair of interlocking jaws provided with funnel-shaped or beveled faces, and with an opening or recess for the passage of a drill and adapted to retain disks of different diameters, substantially as set forth.

2. The combination, with the interlocking jaws adapted to hold a disk in a rigid position for being operated upon by a drill or the like and provided with recesses for the passage of a drill, of a disk-extractor located in one of the jaws, substantially as set forth.

3. The combination, with the supporting-frame, of a pair of interlocking jaws adapted to hold a disk and provided with end and side recesses which expose the sides and bottom of the disk to the action of drills, substantially as set forth.

4. The combination, with a stationary lower jaw having a funnel-shaped face and recesses for the passage of a drill, of a vertically-movable spring-actuated upper jaw provided with teeth beveled on the inner faces and with recesses for the passage of a drill, substantially as set forth.

5. A disk or button holder consisting, essentially, of a pair of interlocking jaws provided with beveled faces, one of the jaws being centrally bored to receive bottom drills and both jaws being recessed at the sides to admit side drills, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

SAMUEL L. OTIS.

Witnesses:

JOHN C. SHELLEY,
EDWIN B. GAGER.